⦿ TCS NQT Prime Role - 22-Day Study Plan

This revised plan ensures **efficient coverage of key topics** while keeping enough practice for **real-time coding challenges**.

Week 1: Fundamentals & Problem-Solving

Day 1-2: Sorting, Searching & Two-Pointer Approach

⦿ **Sorting:** QuickSort, MergeSort, Counting Sort
⦿ **Binary Search:** Lower Bound, Upper Bound
⦿ **Two-Pointer:** Pair sum, Closest sum in sorted arrays
◎ **Practice:** Leetcode **(Search in Rotated Sorted Array, Two Sum, 3 Sum)**

Day 3: Sliding Window & Greedy Algorithms

⦿ **Sliding Window:** Maximum sum subarray, Longest substring without repeating characters
⦿ **Greedy:** Activity Selection, Huffman Encoding
◎ **Practice: TCS NQT past questions on Greedy & Sliding Window**

Day 4: Prefix Sum & Subarrays

⦿ **Prefix Sum:** Subarray sum queries, Difference Array
⦿ **Kadane's Algorithm:** Maximum Subarray Sum
◎ **Practice: Leetcode "Maximum Sum Circular Subarray"**

Day 5: Revision & Mock Test

◎ **Solve 2-3 TCS NQT past questions**

📅 Week 2: Trees, Graphs & Recursion

Day 6-7: Trees & Binary Search Trees (BST)

⦿ **Tree Traversals:** Preorder, Inorder, Postorder, Level Order
⦿ **BST Operations:** Insert, Delete, Find Kth Smallest
◎ **Practice:** Leetcode **"Lowest Common Ancestor (LCA)"**

Day 8-9: Graphs (DFS, BFS, MST)

⦿ **DFS & BFS:** Shortest Path in Unweighted Graph
⦿ **Minimum Spanning Tree (MST):** Kruskal's & Prim's
◎ **Practice:** Number of Islands, Connected Components

Day 10: Shortest Path Algorithms

⦿ **Dijkstra's Algorithm (Weighted Graphs)**
⦿ **Bellman-Ford Algorithm (Handles Negative Weights)**
◎ **Practice:** Shortest path in city map

Day 11: Revision & Mock Test

◎ Solve **TCS NQT graph-based problems**

📅 Week 3: Dynamic Programming & Advanced Topics

Day 12-13: DP Basics & Fibonacci Patterns

⦿ **Top-Down (Memoization) & Bottom-Up (Tabulation)**
⦿ **Fibonacci, Climbing Stairs, Subset Sum**
◎ **Practice:** Coin Change Problem

Day 14: DP on Strings & Subarrays

⦿ **LIS (Longest Increasing Subsequence), LCS (Longest Common Subsequence)**
⦿ **Edit Distance, Minimum Insertions for Palindrome**
◎ **Practice:** Leetcode **"Minimum Insertions to Make a String Palindrome"**

Day 15: Backtracking & Subsets

⦿ **Subsets, Permutations, N-Queens Problem**
⦿ **Sudoku Solver, Word Search**
◎ **Practice: Generate All Parentheses Combinations**

Day 16: Revision & Mock Test

◎ Solve **past coding questions from TCS NQT**

📅 Week 4: Edge Cases & Final Mock Tests

Day 17: Hashing, Heap & Monotonic Stack

⦿ **Hashmaps:** Count frequency, Anagrams
⦿ **Heap (Priority Queue):** Top K elements, Median in Stream
◎ **Practice:** Find Kth largest element

Day 18: Trickier Problems & Edge Cases

⦿ **Handling Large Numbers & Modular Arithmetic**
⦿ **Fast Exponentiation, Reducing Complexity**
◎ **Practice: TCS NQT optimization-based problems**

Day 19-20: Full-Length Mock Tests

◎ Solve **2 full-length TCS NQT coding tests**
◎ Identify weak topics and improve

Day 21: Revision

◎ Revise **cheat sheet + key problem-solving approaches**

Day 22: Final Quick Revision + Light Practice

◎ Solve a few **easy-medium level problems to stay confident**
◎ Relax & get **mentally ready for the exam**

⦿ Additional Resources for Practice

◎ **TCS NQT Specific:** CodeVita past problems, TCS Digital problems
◎ **Leetcode Topics:** Graphs, DP, Sliding Window
◎ **GeeksforGeeks:** TCS NQT practice sets